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[54] **CORRELATION DETECTOR AND COMMUNICATION APPARATUS**

[75] Inventors: **Tomohiro Dohi**, Yokohama; **Mamoru Sawahashi**, Yokosuka; **Fumiyuki Adachi**, Yokohama, all of Japan

[73] Assignee: **NTT Mobile Communications Network, Inc.**, Tokyo, Japan

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[52] **U.S. Cl.** **370/342**; 375/206; 375/208; 370/350

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Primary Examiner—Wellington Chin
Assistant Examiner—Huy D. Vu
Attorney, Agent, or Firm—Rogers & Wells

[57] **ABSTRACT**

A correlation detector is provided which can establish initial acquisition quickly, and achieve high accuracy tracking by extracting crosscorrelation components in a receiver for CDMA communication, and a communication system using the correlation detector is also provided. During the initial acquisition, a received signal **21** is supplied to a matched filter **43**. When an acquisition decision circuit **45** decides that the matched filter **43** detects the acquisition, it controls a switching circuit **42** to supply the received signal **21** to multipliers **47** and **48**, and resets a VCCG **29** and a spreading code replica generator **30**. After establishing the acquisition, a received spreading code is quasicoherent detected, and the detected spread signal is multiplied by a phase advanced replica and a phase retarded replica. Correlation detection signals are produced from the products, and squared components of the correlation detected signals are generated, summed in the opposite phase, and averaged along the time axis. The averaged signal is inversely modulated by a decision signal of received data to obtain a phase error signal, the decision signal being obtained by multiplying the received spread signal by a replica in synchronism with the received spread sinal, and by integrating the product over a plurality of chips to compensate for a receive phase error. The replica generator is driven by a clock signal whose phase is controlled by the phase error signal.

9 Claims, 8 Drawing Sheets